

Katharine's Place

This project for low income and homeless families shows the power of a committed owner, architect and builder. The project's tight budget didn't get in the way of including many green features, and creativity turned site challenges — a steep slope next to arterials — into amenities to residents.

Green Home Case Study

Healthy homes for a healthy environment



Photos by Bill Singer, Environmental Works

About the project

Name: Katharine's Place
Type: New, multifamily construction
Square Feet: 32,040
Location: Seattle's Rainier Valley neighborhood
Completed: April 2005

This project provides apartments and townhouses for 25 low-income and recently homeless families, plus one unit for an on-site manager. Named for Katharine Drexel, a Catholic saint who devoted her life to social justice for African Americans and Native Americans, the project is owned and run by the Archdiocesan Housing Authority.

A five-story building runs along busy Martin Luther King Way South and the planned light rail line, and a townhouse building sits along another edge of the wedge-shape lot. Between them lies an 8,000-square-foot courtyard. Because the housing is designed to help families when they are likely to need significant support, there is also office space for counselors and a meeting room with a kitchen that can double as a social hall and a classroom for parenting and job-training classes.

Prior to funding this project, the City of Seattle's Office of Housing required a SeaGreen Sustainability Plan. Even with its very tight budget, the project incorporated many "green" features found in more expensive buildings and earned Seattle City Light's Built SmartSM certification for energy-efficiency. To protect indoor air quality, the builders used formaldehyde-free fiberglass insulation and finishes low in volatile organic compounds, or VOCs. In main living spaces, they installed easy-to-clean resilient flooring and limited carpeting primarily to bedrooms. To ensure good ventilation and prevent mildew, all windows open, and high-efficiency exhaust fans run continuously. The metal siding and gypsum drywall contain a significant percentage of recycled material.

Goals/Challenges

Site issues

The site presented an enormous challenge because it is wedge-shaped and sloped. There is a steep slope on one side and a major arterial, Martin Luther King Way South, on another. Construction of a light rail line that will run next to the project along the arterial greatly complicated the construc-

Ratings & Awards

Multifamily Award,
 2005 Built GreenTM
 Design Competition

Built GreenTM 4-Star
 Certified Project
 (390 points)

Built SmartSM
 Certified for Resource
 Efficiency

The Team

Builder

Marpac Construction, LLC
(206) 329-4992
www.marpac.net

Architect

Environmental Works
(206) 329-8300
www.eworks.org

Owner

Archdiocesan Housing Authority

Development Consultant

Beacon Development Group

Resources/Products

Elevator

EcoSpace™ model
KONE Inc.
(425) 861-9696
www.Kone.com

Heaters

ConvectAir
(800) 463-6478
www.convectair.com

Resilient flooring

True linoleum:
Armstrong
(800) 233-3823
www.armstrong.com

Formaldehyde-free insulation

Johns Manville
(800) 654-3103
www.jm.com

Low VOC finishes

Horizon brand
Rodda Paint Co.
(206) 547-7405
www.rodmapaint.com

For More Info

Built Green™ – a residential green building program/rating system developed by the Master Builders Association of King and Snohomish Counties in partnership with Seattle.
www.builtgreen.net

Energy Star – a government-backed program helping businesses and individuals protect the environment through superior energy efficiency.
www.energystar.gov

King County Construction Works – provides free assistance and recognition to builders who recycle, reduce waste and use recycled-content building materials.
www.metrokc.gov/dnpr/swd/greenbuilding

“SeaGreen: Greening Seattle’s Affordable Housing” – a guide developed by the City of Seattle’s Office of Housing to promote energy conservation, operational savings and sustainable building practices in affordable multifamily housing projects.
www.seattle.gov/housing/seagreen

Seattle Sustainable Building Program – provides guidelines, incentives, and assistance to increase the environmental performance of buildings in Seattle.
www.seattle.gov/dpd/sustainability

Seattle Built Smart Program – certifies apartments and condominiums designed and built to conserve resources while providing a healthy, comfortable living environment.
www.seattle.gov/light/conserve/resident/cv5_bs.htm

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The architect took advantage of the slope to accomplish several goals, including providing a large, safe play area and giving as many residences as possible direct, easy access to the outdoors, rather than entries into hallways or elevator lobbies. The five-story building, which runs along the east and north sides of the lot, has parking on the first floor and the offices and social hall on the third floor. Because of the slope, the third floor opens into the courtyard and is at the same level where the three-story townhouse structure begins. This setup allows all of the common rooms and 14 of the 26 apartments to have doors to the courtyard. Many of the units even have semi-private front porches that are integrated into the courtyard.

Along the busy street, a series of angled bays give many units in the five-story building south-facing views of Mount Rainier.

Family-friendly features

Because this is family housing, one key challenge was to fit 26 residences on the site, about two-thirds of an acre, and still have a large enough outdoor play space for 50 to 75 children. That need was met with the sunny, south-facing courtyard, which has play spaces designated for younger and older children, and also functions as a gathering spot for adults. Because so many of the residences and offices have direct access, residents, the manager and counselors all help monitor what’s going on. “There are lots of eyes on the open space,” says the architect, Bill Singer of Environmental Works, a non-profit design studio.

Green features

Archdiocesan Housing Authority is committed to environmentally responsible construction, yet the project’s funding dictated that the overall cost could not exceed that of standard construction. So the building team focused on cost-effective green measures, especially those that would result in lower utility costs over the long term. These included high-performance vinyl windows and more insulation than building codes require, including R-50 roof insulation and full insulation under concrete floors. Energy Star refrigerators were installed in all units. Half the units have clothes washers and dryers, and there are also common-use laundry areas, all with front-loading, low-water-use models rated by Energy Star.

Choosing durable materials that need little maintenance was another way to leverage the money spent on green construction, because these lower long-term operating costs. Some of the siding is pre-finished metal, and the rest is fiber-cement. Inside, there are solid-core birch veneer doors, which are less likely to be damaged than hollow-core doors and more sustainable because they use a veneer of a plentiful domestic hardwood rather than a tropical species. The wood-framed maple cabinets and pre-finished wood trim can simply be

wiped clean, rather than need frequent repainting, as some cabinets and trim do.

Heating

Instead of the electric baseboard heaters typically found in housing of this type, electric convection heating units were installed in all rooms. These wall-mounted devices operate silently because they use natural air flow to circulate heat. Cold air enters the heater through a vent at the bottom and hot air flows out at the top. There are no ducts or blowers. “So you aren’t blowing around dust and other allergens like typical heaters do,” Singer says. Each room has a heater and thermostat, allowing residents to close up bedrooms in the daytime and heat only the rooms that they are using.

Resilient flooring

The flooring in many of the main rooms is true linoleum, which is made from natural materials including cork and linseed oil. The same flooring found on Washington State ferries, it’s expected to last for 40 years.

In bathrooms and laundry areas, where more water resistance was needed, the flooring is LonEco, a type of sheet vinyl made by Lonseal Inc. that contains recycled vinyl and wood powder.

Lessons learned

Expect a learning curve

On this project, one of the most innovative features is the five-story building’s elevator, which uses a simple gearless motor, rather than hydraulics, to raise and lower the platform. It cost 15 to 20 percent more but uses 60 percent less electricity, so it should pay for itself in less than five years. However, this project was one of the first in Seattle to use this type of elevator. Because the contractor had never installed one, the process didn’t go smoothly, although everything worked out the end. The lesson, Singer says, is to build extra time into the schedule when you use innovative materials.

Search for bargains

Although “green” construction has a reputation for costing more, it doesn’t have to. On this project, the architect found that low-VOC finishes were only slightly more expensive than standard ones. And products made from recycled ingredients often cost the same as those with virgin materials. Some measures actually reduced costs. For example, more than 75 percent of the construction waste was recycled, which reduced the dump fees that the builder had to pay. “There are a lot of green features that don’t add to costs,” Singer says. “You just have to rethink what you do. The more experience you get, the better you get at doing it.”



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